

**FIG. 1**

2/10

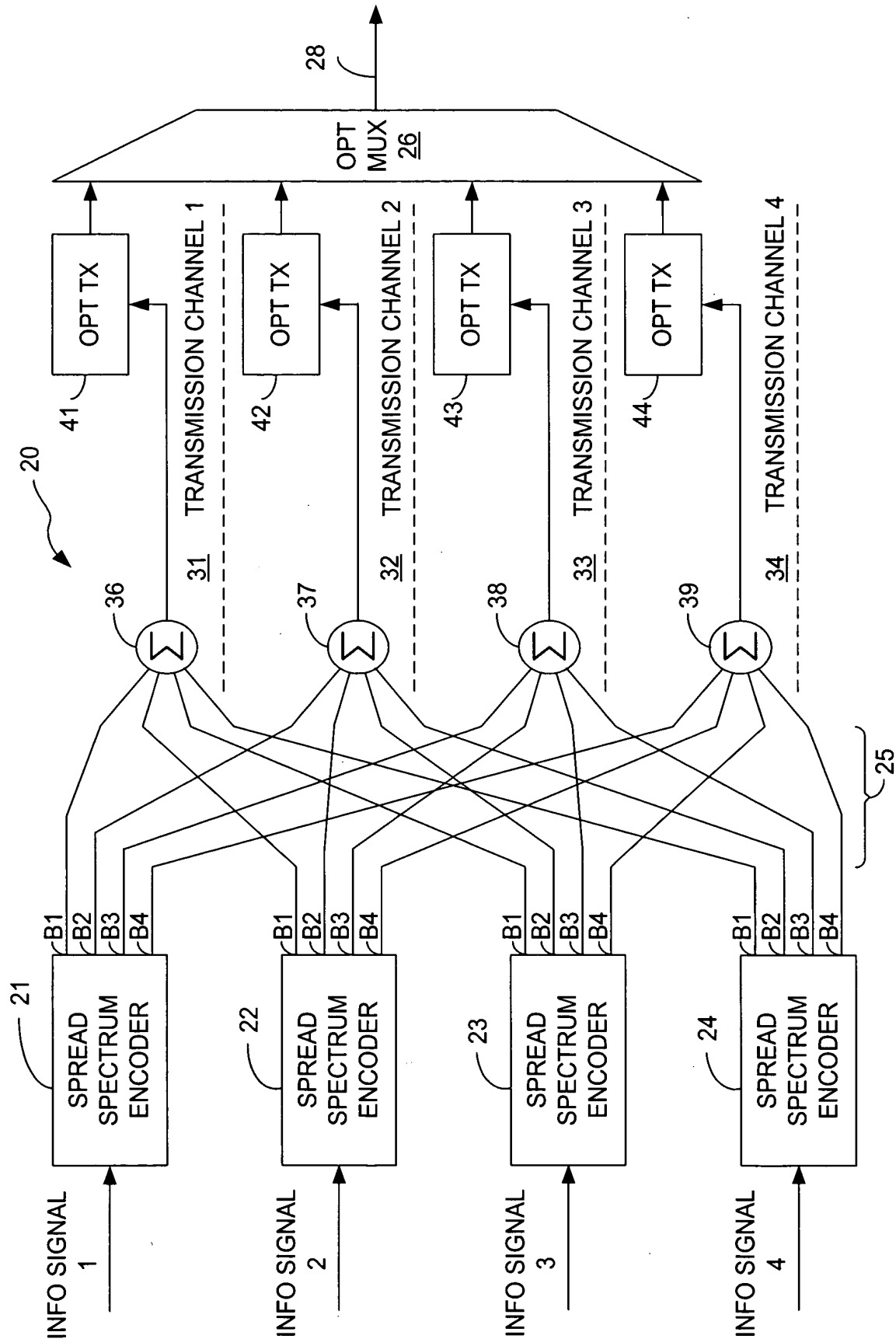
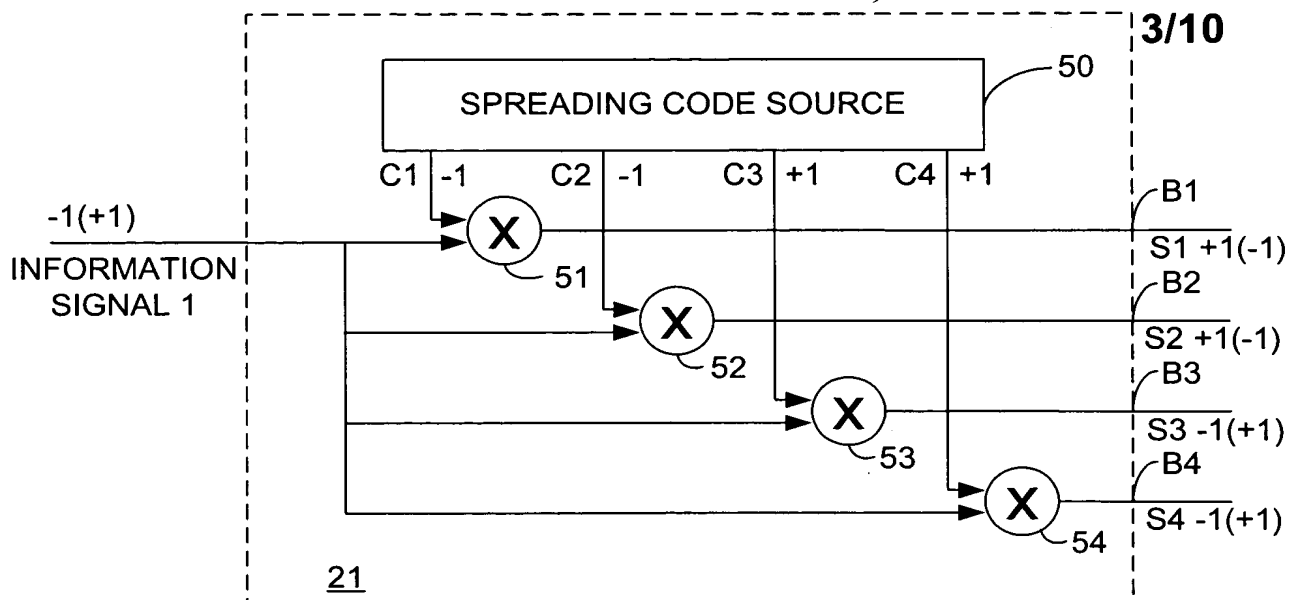
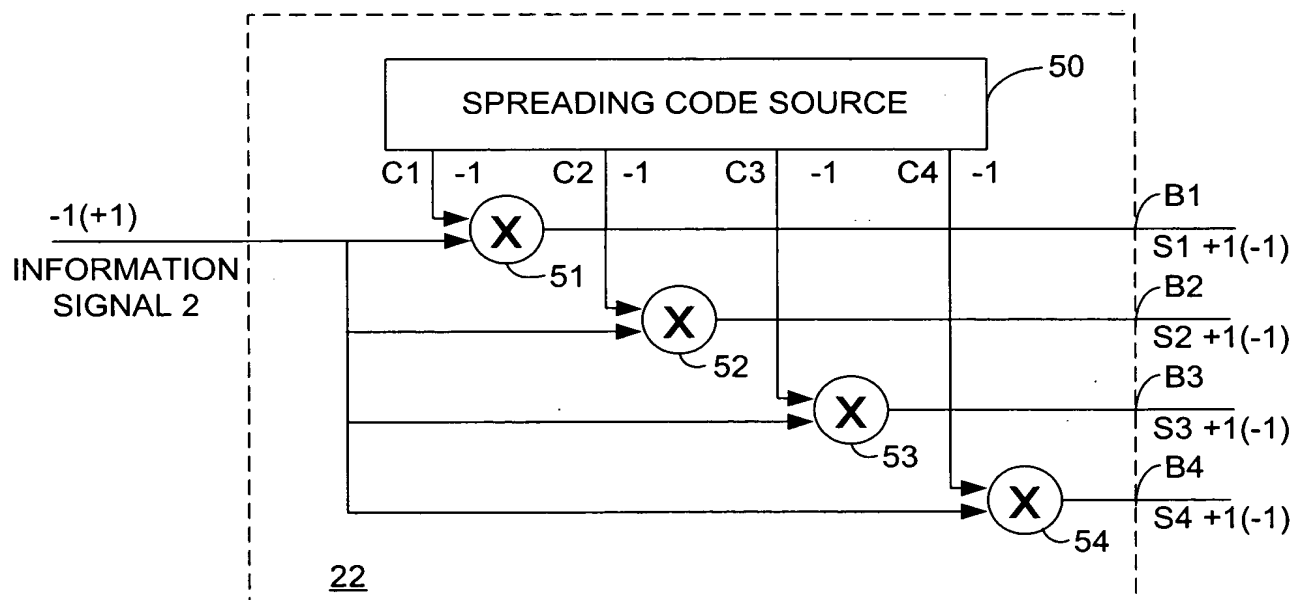


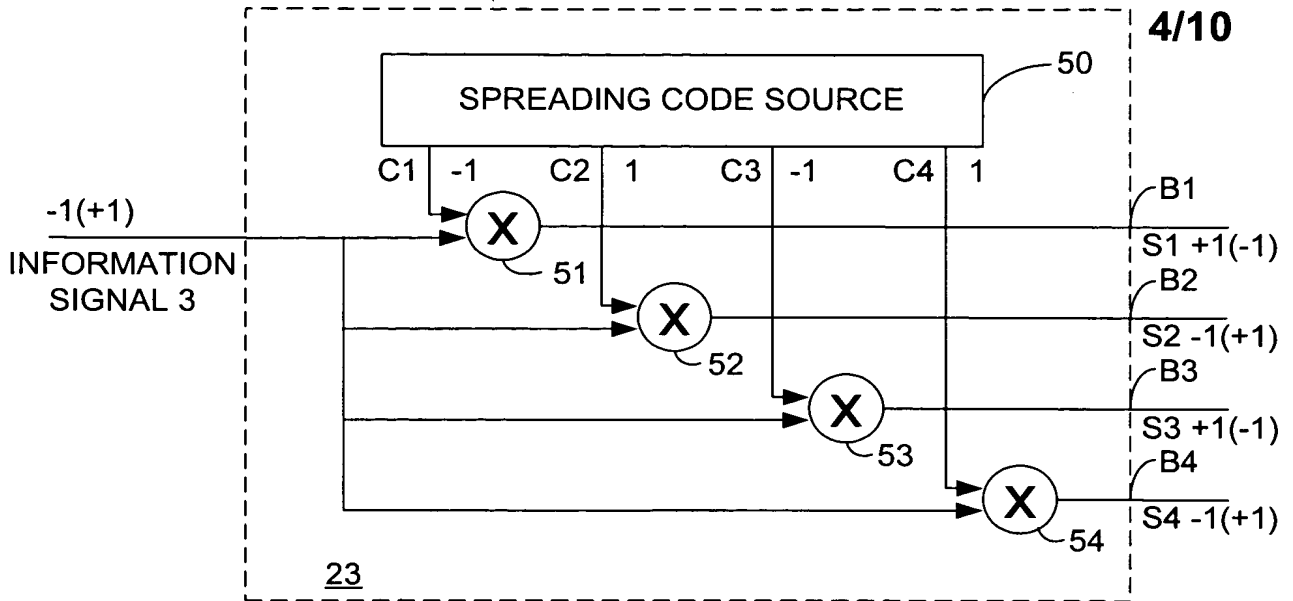
FIG. 2



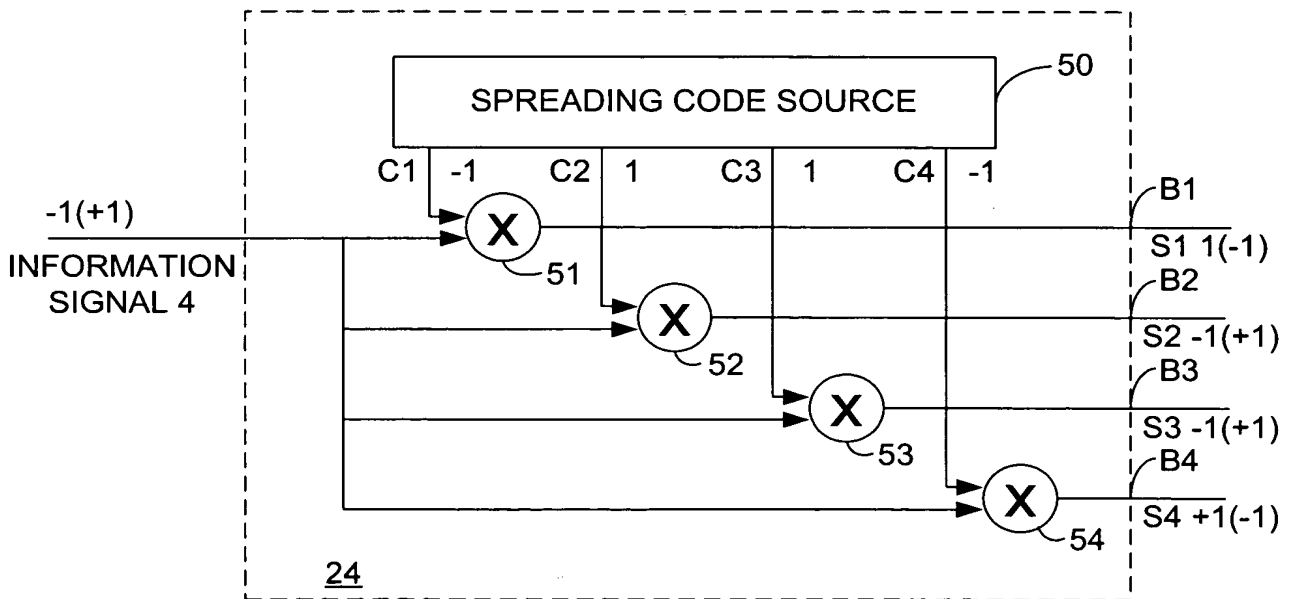
**FIG. 3A**



**FIG. 3B**



**FIG. 3C**



**FIG. 3D**

S-S. Enc.	Spreading Code	I.S. State	Code Signal States				I.S. State	Code Signal States			
			S1	S2	S3	S4		S1	S2	S3	S4
21	-1-1+1+1	-1	+1	+1	-1	-1	-1	+1	+1	-1	-1
22	-1-1-1-1	-1	+1	+1	+1	+1	-1	+1	+1	+1	+1
23	-1+1-1+1	-1	+1	-1	+1	-1	-1	+1	-1	+1	-1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			+4	0	0	0		+2	+2	+2	-2
21	-1-1+1+1	+1	-1	-1	+1	+1	+1	-1	-1	+1	+1
22	-1-1-1-1	-1	+1	+1	+1	+1	-1	+1	+1	+1	+1
23	-1+1-1+1	-1	+1	-1	+1	-1	-1	+1	-1	+1	-1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			+2	-2	+2	+2		0	0	+4	0
21	-1-1+1+1	-1	+1	+1	-1	-1	-1	+1	+1	-1	-1
22	-1-1-1-1	+1	-1	-1	-1	-1	+1	-1	-1	-1	-1
23	-1+1-1+1	-1	+1	-1	+1	-1	-1	+1	-1	+1	-1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			+2	-2	-2	-2		0	0	0	-4
21	-1-1+1+1	+1	-1	-1	+1	+1	+1	-1	-1	+1	+1
22	-1-1-1-1	+1	-1	-1	-1	-1	+1	-1	-1	-1	-1
23	-1+1-1+1	-1	+1	-1	+1	-1	-1	+1	-1	+1	-1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			0	-4	0	0		-2	-2	+2	-2
21	-1-1+1+1	-1	+1	+1	-1	-1	-1	+1	+1	-1	-1
22	-1-1-1-1	-1	+1	+1	+1	+1	-1	+1	+1	+1	+1
23	-1+1-1+1	+1	-1	+1	-1	+1	+1	-1	+1	-1	+1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			+2	+2	-2	+2		0	+4	0	0
21	-1-1+1+1	+1	-1	-1	+1	+1	+1	-1	-1	+1	+1
22	-1-1-1-1	-1	+1	+1	+1	+1	-1	+1	+1	+1	+1
23	-1+1-1+1	+1	-1	+1	-1	+1	+1	-1	+1	-1	+1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			0	0	0	+4		-2	+2	+2	+2
21	-1-1+1+1	-1	+1	+1	-1	-1	-1	+1	+1	-1	-1
22	-1-1-1-1	+1	-1	-1	-1	-1	+1	-1	-1	-1	-1
23	-1+1-1+1	+1	-1	+1	-1	+1	+1	-1	+1	-1	+1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			0	0	-4	0		-2	+2	-2	-2
21	-1-1+1+1	+1	-1	-1	+1	+1	+1	-1	-1	+1	+1
22	-1-1-1-1	+1	-1	-1	-1	-1	+1	-1	-1	-1	-1
23	-1+1-1+1	+1	-1	+1	-1	+1	+1	-1	+1	-1	+1
24	-1+1+1-1	-1	+1	-1	-1	+1	+1	-1	+1	+1	-1
Mod			-2	-2	-2	+2		-4	0	0	0

**Fig. 4**

6/10

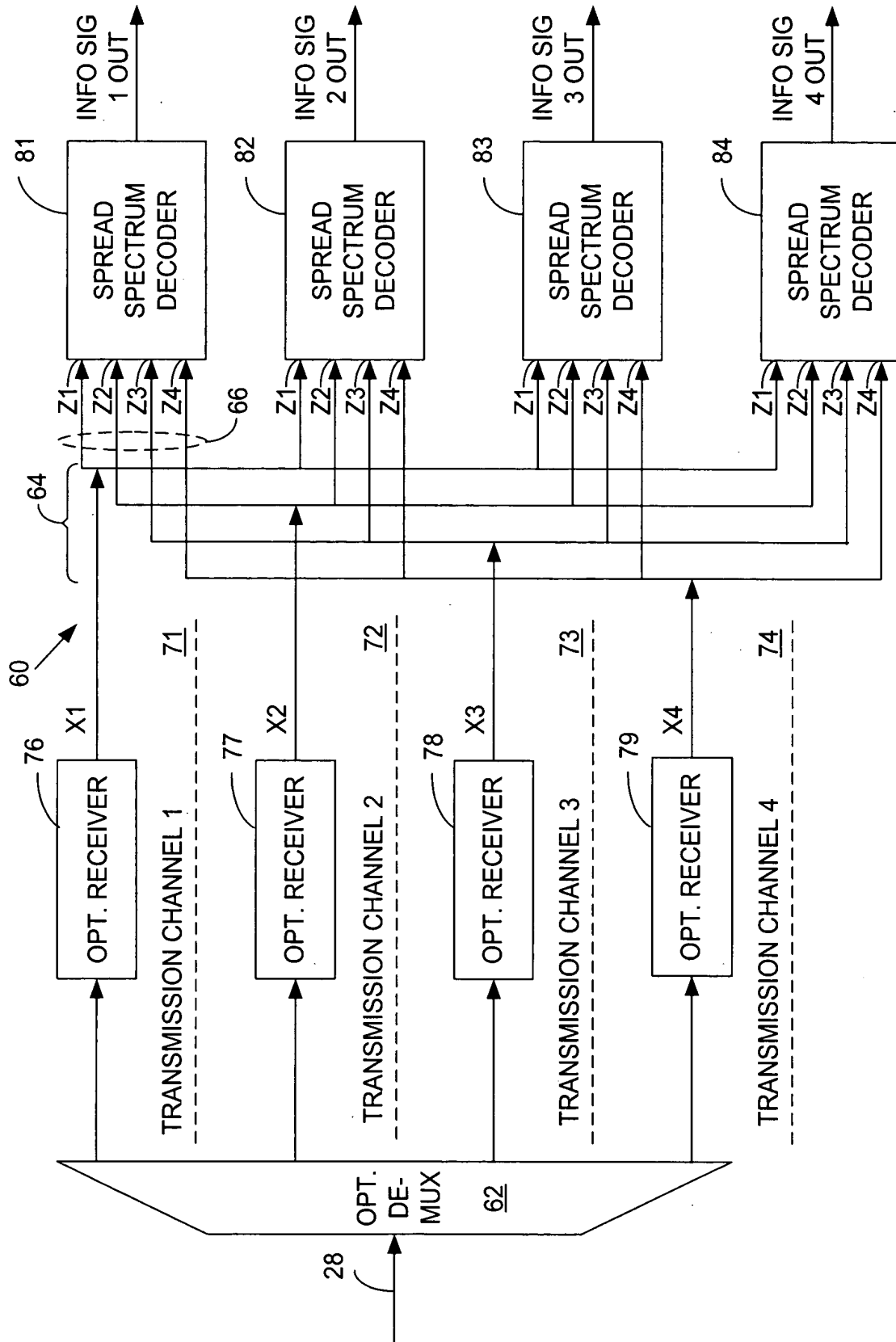
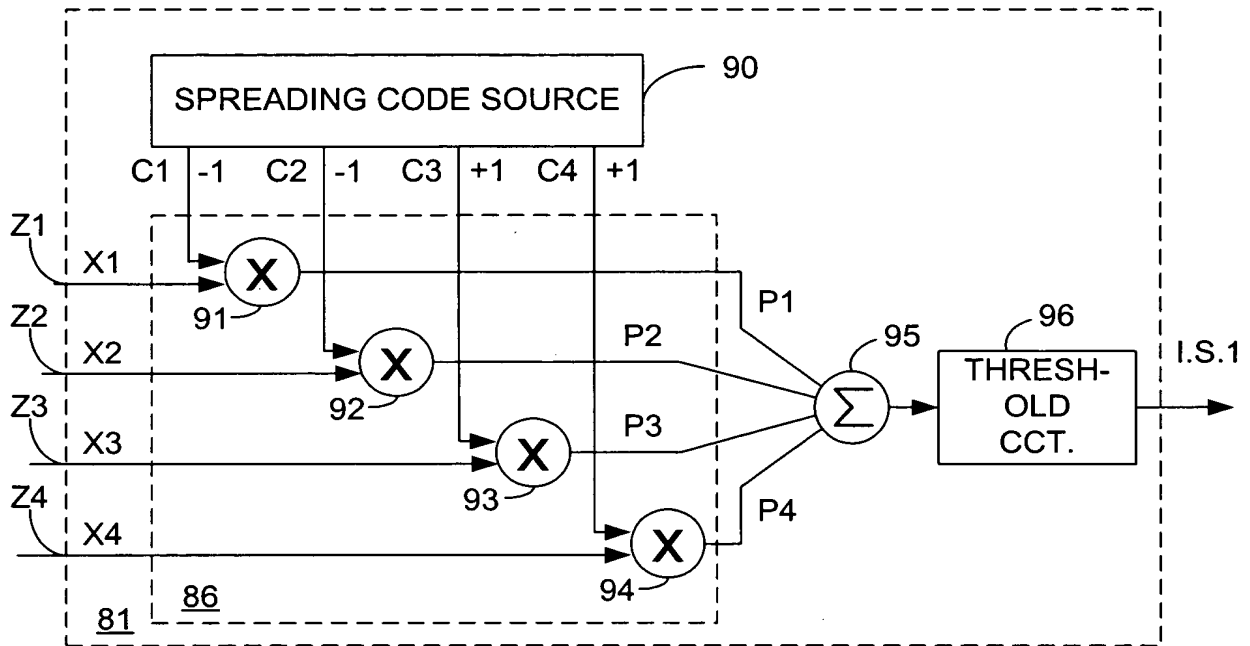
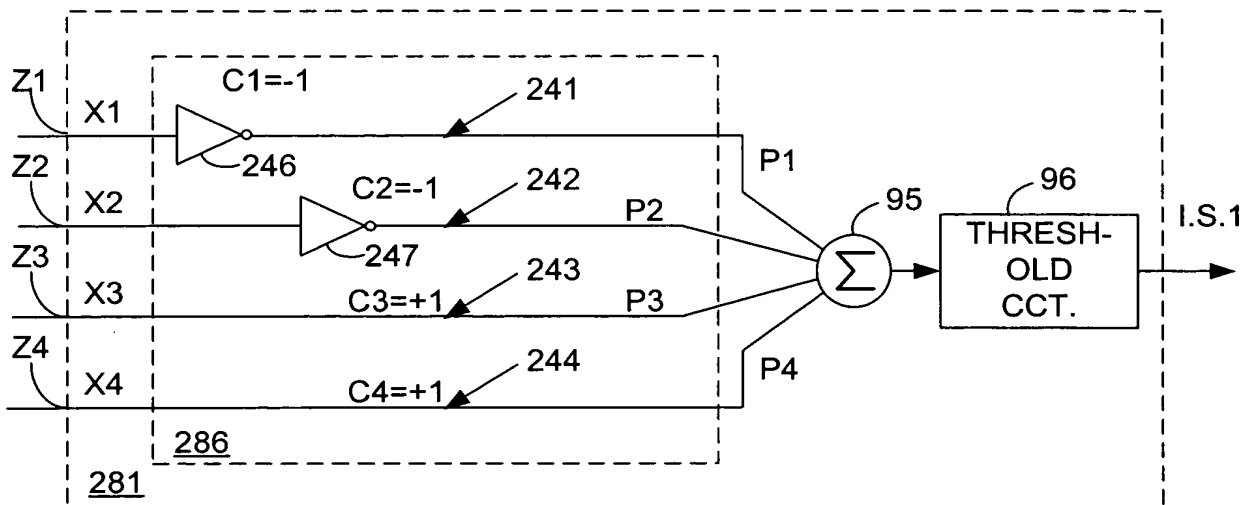


FIG. 5

7/10



**FIG. 6**



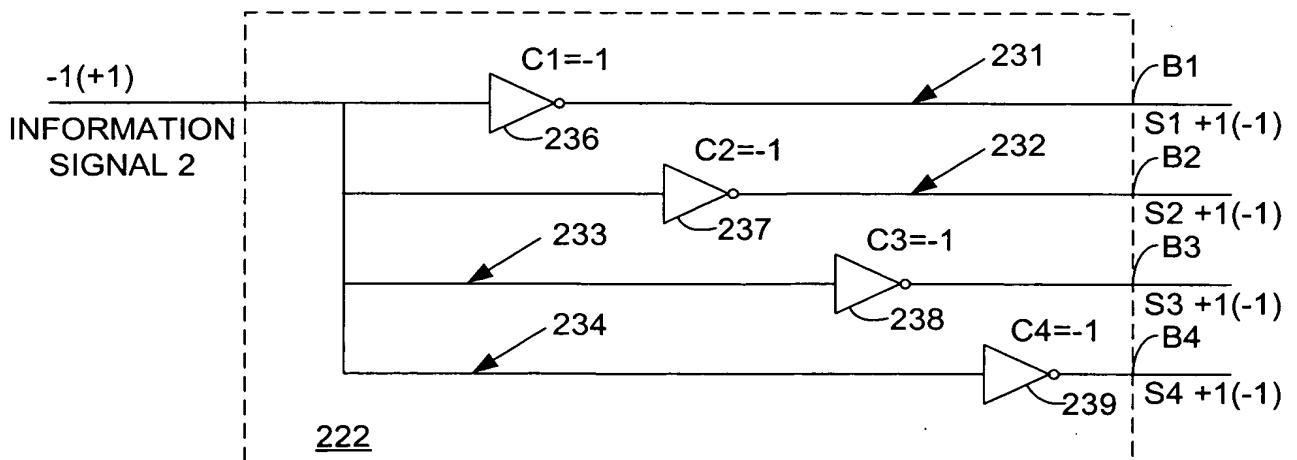
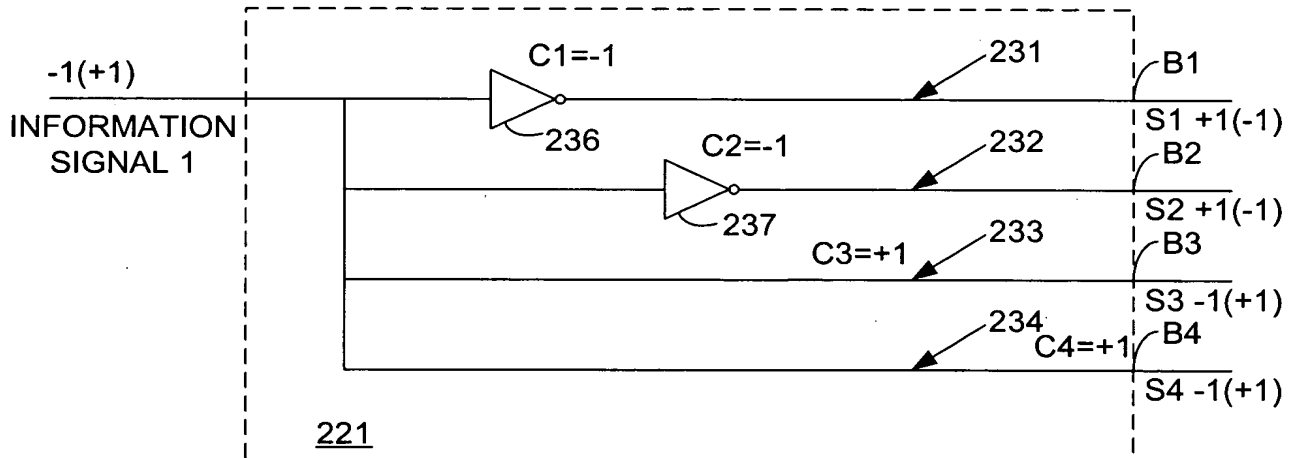
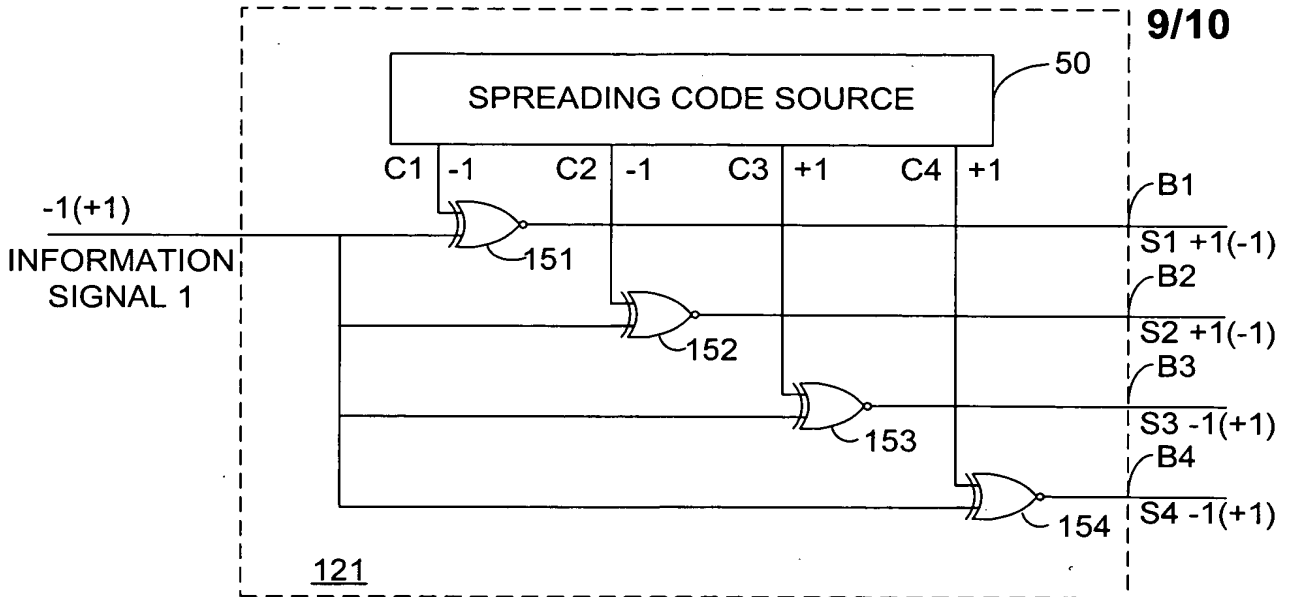
**FIG. 10**

8/10

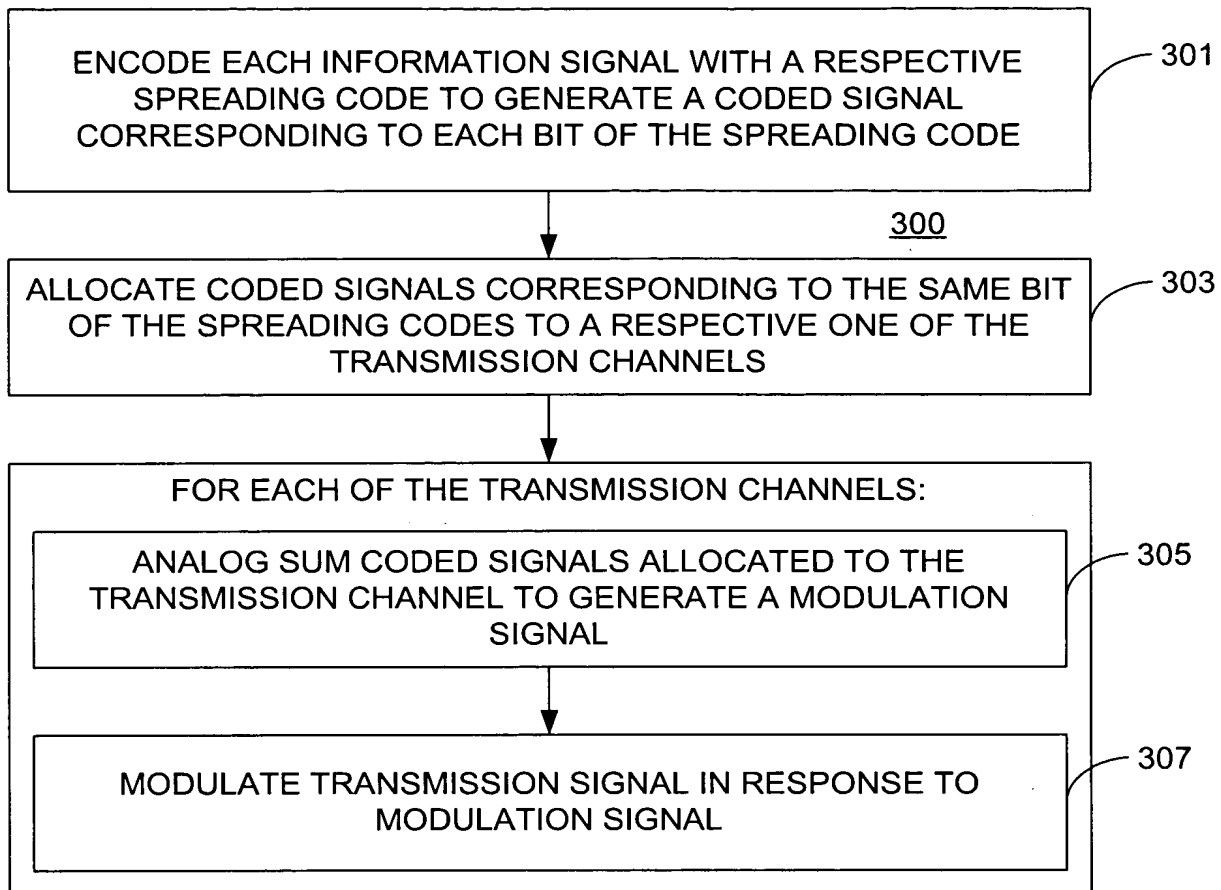
S-S Dec	Spread. Code	Product States				Sum	Product States				Sum
		P1	P2	P3	P4		P1	P2	P3	P4	
	Ch. Sig.	+4	0	0	0		+2	+2	+2	-2	
81	-1-1+1+1	-4	0	0	0	-4	-2	-2	+2	-2	-4
82	-1-1-1-1	-4	0	0	0	-4	-2	-2	-2	+2	-4
83	-1+1-1+1	-4	0	0	0	-4	-2	+2	-2	-2	-4
84	-1+1+1-1	-4	0	0	0	-4	-2	+2	+2	+2	+4
	Ch. Sig.	+2	-2	+2	+2		0	0	+4	0	
81	-1-1+1+1	-2	+2	+2	+2	+4	0	0	+4	0	+4
82	-1-1-1-1	-2	+2	-2	-2	-4	0	0	-4	0	-4
83	-1+1-1+1	-2	-2	-2	+2	-4	0	0	-4	0	-4
84	-1+1+1-1	-2	-2	+2	-2	-4	0	0	+4	0	+4
	Ch. Sig.	+2	-2	-2	-2		0	0	0	-4	
81	-1-1+1+1	-2	+2	-2	-2	-4	0	0	0	+4	-4
82	-1-1-1-1	-2	+2	+2	+2	+4	0	0	0	-4	+4
83	-1+1-1+1	-2	-2	+2	-2	-4	0	0	0	-4	-4
84	-1+1+1-1	-2	-2	-2	+2	-4	0	0	0	+4	+4
	Ch. Sig.	0	-4	0	0		-2	-2	+2	-2	
81	-1-1+1+1	0	+4	0	0	+4	+2	+2	+2	-2	+4
82	-1-1-1-1	0	+4	0	0	+4	+2	+2	-2	+2	+4
83	-1+1-1+1	0	-4	0	0	-4	+2	-2	-2	-2	-4
84	-1+1+1-1	0	-4	0	0	-4	+2	-2	+2	+2	+4
	Ch. Sig.	+2	+2	-2	+2		0	+4	0	0	
81	-1-1+1+1	-2	-2	-2	+2	-4	0	-4	0	0	-4
82	-1-1-1-1	-2	-2	+2	-2	-4	0	-4	0	0	-4
83	-1+1-1+1	-2	+2	+2	+2	+4	0	+4	0	0	+4
84	-1+1+1-1	-2	+2	-2	-2	-4	0	+4	0	0	+4
	Ch. Sig.	0	0	0	+4		-2	+2	+2	+2	
81	-1-1+1+1	0	0	0	+4	+4	+2	-2	+2	+2	+4
82	-1-1-1-1	0	0	0	-4	-4	+2	-2	-2	-2	-4
83	-1+1-1+1	0	0	0	+4	+4	+2	+2	-2	+2	+4
84	-1+1+1-1	0	0	0	-4	-4	+2	+2	+2	-2	+4
	Ch. Sig.	0	0	-4	0		-2	+2	-2	-2	
81	-1-1+1+1	0	0	-4	0	-4	+2	-2	-2	-2	-4
82	-1-1-1-1	0	0	+4	0	+4	+2	-2	+2	+2	+4
83	-1+1-1+1	0	0	+4	0	+4	+2	+2	+2	-2	+4
84	-1+1+1-1	0	0	-4	0	-4	+2	+2	-2	+2	+4
	Ch. Sig.	-2	-2	-2	+2		-4	0	0	0	
81	-1-1+1+1	+2	+2	-2	+2	+4	+4	0	0	0	+4
82	-1-1-1-1	+2	+2	+2	-2	+4	+4	0	0	0	+4
83	-1+1-1+1	+2	-2	+2	+2	+4	+4	0	0	0	+4
84	-1+1+1-1	+2	-2	-2	-2	-4	+4	0	0	0	+4

**Fig. 7**

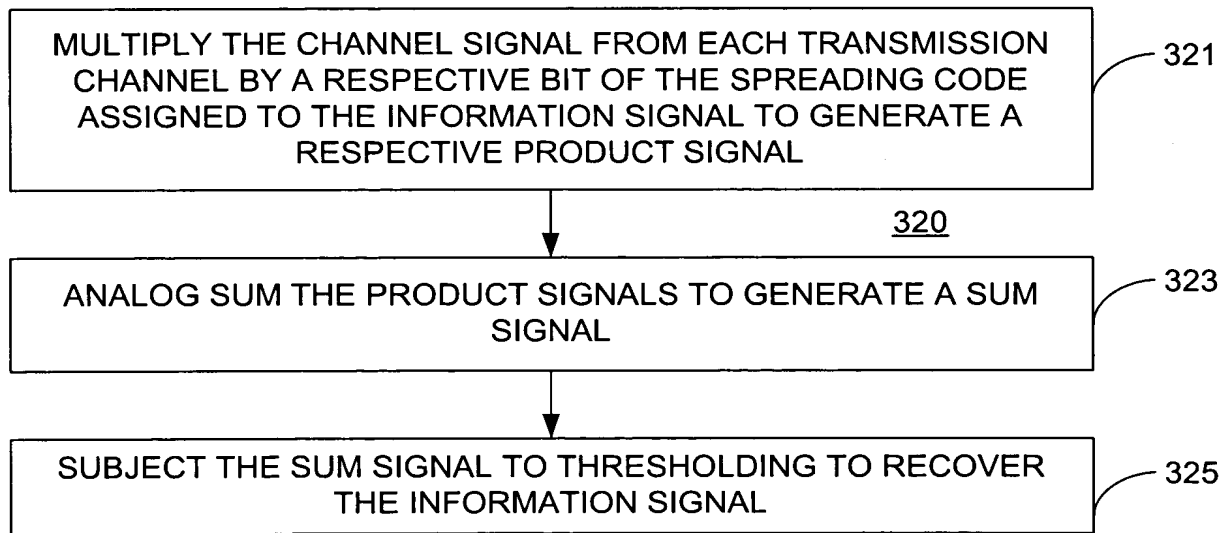




**10/10**



**FIG. 11**



**FIG. 12**